

01-03-00

PTO/SB/05 (2-98)

Please type a plus sign (+) inside this box → ☐Approved for use through 9/30/00. OMB 0651-006
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UTILITY PATENT APPLICATION TRANSMITTAL

Attorney Docket No.

9D-RG-19294

First Named Inventor or Application Identifier

Jesse S. Head

Title

METHODS AND APPARATUS FOR ROTARY DIAL
ENTRY IN AN APPLIANCE

Express Mail Label No.

EL319796862US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:

Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original, and a duplicate for fee processing)
2. ☒ Specification [Total Pages **13**]
(Preferred arrangement set forth below)
- Descriptive title of the invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings (if filed)
- Detailed Description
- Claim(s)
- Abstract of the Disclosure
3. ☒ Drawing(s) (35 USC 113) [Total Sheets **3**]
4. Oath or Declaration [Total Pages **1**]
a. ☐ Newly executed (original or copy)
b. ☐ Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 17 completed)
[Note Box 5 below]
i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s) named
in the prior application, see 37 CFR 1.63(d)(2) and
1.33(b).
5. ☐ Incorporation by Reference (useable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the
oath or declaration is supplied under Box 4b, is considered as being part
of the disclosure of the accompanying application and is hereby
incorporated by reference therein.

6. ☐ Microfiche Computer Program (Appendix)
7. ☐ Nucleotide and/or Amino Acid Sequence Submission
(If applicable, all necessary)
- a. ☐ Computer Readable Copy
- b. ☐ Paper Copy (identical to computer copy)
- c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. ☐ Assignment Papers (cover sheet & document(s))
9. ☐ 37 CFR 3.73(b) Statement [] Power of Attorney
(when there is an assignee)
10. ☐ English Translation Document (if applicable)
11. ☐ Information Disclosure
Statement (IDS)/PTO-1449 [] Copies of IDS
Citations
12. ☐ Preliminary Amendment
13. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
14. ☐ Small Entity
Statement(s) [] Statement filed in prior application,
(PTO/SB/09-12) Status still proper and desired
15. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. ☒ Other: Certificate of Express Mail
Declaration and Power of Attorney (submitted for inventor identification
purposes only)

NOTE FOR ITEMS 1 & 14: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL
ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR
APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).

17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information:

☐ Continuation
Prior application information☐ Divisional
Examiner☐ Continuation-in-part (CIP)
Group/Art Unit

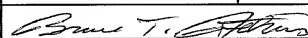
of prior application No.

18. CORRESPONDENCE ADDRESS

☐ Customer Number or Bar Code Labelor ☒ Correspondence address below

(Insert Customer No. or Attach bar code label here)

NAME	John S. Beulick, Esq.				
ADDRESS	Armstrong Teasdale LLP One Metropolitan Square, Suite 2600				
CITY	St. Louis	STATE	Missouri	ZIP CODE	63102
COUNTRY	USA	TELEPHONE	314-621-5070	FAX	314-621-5065

Name (Print/Type)	Bruce T. Atkins	Registration No. (Attorney/Agent)	43,476
Signature		Date	December 30, 1999

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the
amount of time you are required to complete this form should be sent to the Chief Information Office, Patent and trademark Office, Washington, DC 20231. DO NOT
SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

**CERTIFICATE OF MAILING BY EXPRESS MAIL
TO THE ASSISTANT COMMISSIONER FOR PATENTS**

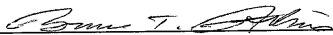
Express Mail mailing label number: **EL319796862US**

Date of Mailing: **December 30, 1999**

I certify that the attached utility patent application **claiming benefit of Provisional Application Serial No. 60/150,395 filed August 23, 1999 of JESSE S. HEAD for METHODS AND APPARATUS FOR ROTARY DIAL USER ENTRY IN AN APPLIANCE** including:

- Eight (8) pages of specification; four (4) pages of claims; one (1) page of abstract
- Three (3) sheets of drawings
- Declaration and Power of Attorney (submitted for inventor identification purposes only)(2 pages)
- Patent Application Transmittal (1 page)
- Fee Transmittal (in duplicate) (1 page)
- Certificate of Mailing Via Express Mail (1 page)
- Return post card

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above in an envelope addressed to the Assistant Commissioner for Patents, Box PATENT APPLICATION, Washington, D.C. 20231.



Bruce T. Atkins
Reg. No. 43,476
Armstrong Teasdale LLP
One Metropolitan Square, Suite 2600
St. Louis, MO 63102

0475856-123090
60221-935240

EXPRESS MAIL #: EL319796862US

METHODS AND APPARATUS FOR ROTARY DIAL USER ENTRY IN AN APPLIANCE

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. provisional application No. 60/150,395, filed August 23, 1999.

BACKGROUND OF THE INVENTION

This invention relates generally to controls for cooking appliances and, more particularly, to a rotary dial control to enter control information for cooking appliances.

As technology has advanced in cooking appliances, the complexity and number of control systems for selecting cooking options and control information has increased. Accurately selecting and inputting the control information and cooking options available to a user for each specific food to be cooked, increases the likelihood that the food will be cooked correctly.

Cooking appliances typically include an array of keypads mounted to a control panel for enabling an operator to enter and select the feature options, and a numerical key pad numbered 0-9. The complexity of the control panel and the number of keypads mounted to the control panel increases as the appliance functionality and features increase. Such control panels are often complex for users to understand, offer little flexibility to the users, and do not provide users with an opportunity to adjust or review in-progress cooking without terminating the cooking.

BRIEF SUMMARY OF THE INVENTION

In an exemplary embodiment, a cooking appliance control panel includes at least one rotary dial configured to enable an operator to select control information, and a control interface which provides a prompt to guide a user through a selection process of the control information. The control information includes at least one of a cooking mode, a food type, a food weight, a food size, and a degree of doneness. The cooking appliance is operatively responsive to the selection of the control information from the rotary dial.

In operation, the user selects the control information for the food to be cooked from a touch control area, a rotary dial, or a combination of inputs from the touch control area and the rotary dial. The rotary dial includes a review feature which permits the user to review the selections and an adjust feature which permits the user to change a cooking time while cooking is in progress. As a result, the rotary dial eliminates more costly and more complicated known control systems for cooking appliances and provides a control system that is reliable, flexible, and simple to operate.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a front view of a cooking appliance including a control system;

Figure 2 is a front view of the control system shown in Figure 1; and

Figure 3 is an informational listing of some of the control information available for input by a user into the control system shown in Figure 1.

DETAILED DESCRIPTION OF THE INVENTION

The present invention is directed, in one aspect, to the operation of a cooking appliance that includes at least two types of cooking modes, such as a microwave mode and a lightwave mode of cooking. Although one specific embodiment of a cooking appliance including a microwave cooking mode and a lightwave cooking mode is described below, it should be understood that the present invention can be utilized in combination with many other such cooking appliances and is not limited to practice with the oven described herein.

Figure 1 is a front view of a cooking appliance 10 including a control system 12. Cooking appliance 10 includes a body 14 which is constructed of a top 16, a bottom 18 which is connected to top 16 with a first side 20, a second side 22, and a rear side (not shown). Body 14 houses a cooking chamber (not shown) for receiving food (not shown) during cooking. A door 26 is hingedly attached to a front face 28 of body 14 and is pivotable to selectively open and close with a handle 29 to access the cooking chamber. Door 26 includes a window 30 fabricated from dark tinted glass having a thickness of about 1/8 inches which can withstand high temperatures, as is

known in the art. Window 30 permits a user to visually inspect the cooking chamber during cooking without exposing the user to intense light generated while cooking appliance 10 is operated. Cooking appliance 10 also includes a vent grill 32. In one embodiment, cooking appliance 10 is operable in microwave and lightwave modes of cooking.

Control system 12 includes a control panel 40 for selecting control information (not shown in Figure 1) and a control interface 44 for providing visual information about the cooking to a user. Control panel 40 includes a touch control area 46, described in more detail below, which provides the user with many feature options available during cooking. Control panel 40 also includes a rotary dial 48 configured to permit a user to select control information for cooking. Control panel 40 is operatively responsive to any selection of control information the user inputs using touch control area 46 and rotary dial 48.

Figures 2 and 3 respectively illustrate a front view of control system 12 including control panel 40 and control interface 44 and an informational listing of control information 49 which may be input into control panel 40. Control interface 44 is mounted to control panel 40 and includes alphanumeric display 50. Alphanumeric display 50 displays the current time of day when cooking appliance 10 is not in operation. Additionally, during entry of control information 49, alphanumeric display 50 provides a visual prompt which guides the user through a selection process of control information 49. In one embodiment, alphanumeric display 50 is a VFD or LED type of display which displays multiple lines.

Control panel 40 includes touch control area 46 and rotary dial 48. A user may select control information 49 using touch control area 46, rotary dial 48, or a combination of rotary dial 48 and touch control area 46. Touch control area 46 includes a face surface 52 which includes a plurality of keys 60-86 (described in more detail below) which extend from face surface 52 and are configured to permit a user to enter control information 49 and activate feature options. Rotary dial 48 is rotationally attached to cooking appliance 10 and extends through an opening 56 in surface face 52. Each of keys 60-86 is connected to a control (not shown) which includes a microprocessor (not shown) or other electronic elements for executing feature options or control information 49 selected by the user. The operation of a stored program microprocessor for receiving information and issuing control commands to various cooking elements of a cooking appliance is well known.

Keys 60-86 provide a user with cooking appliance feature options and various cooking functions and are electrically operable when depressed by a user applying a minimal amount of pressure. More specifically, keys 60-86 include a cook touch control pad 60, a start/pause touch control pad 62, a manual cook touch control pad 64, a clear/off touch control pad 66, a power level touch control pad 68, a delay start touch control pad 70, a timer touch control pad 72, a microwave touch control pad 74, a micro express touch control pad 76, a vent fan touch control pad 78, a reminder touch control pad 80, an options touch control pad 82, a help touch control pad 84, and a surface light touch control pad 86.

Rotary dial 48 interacts with several of keys 60-86 and is connected to a control (not shown) which includes a microprocessor (not shown) or other electronic elements for executing control information 49 selected by the user. Rotary dial 48 is also connected to a select switch (not shown) which is operatively engaged when the user applies a moderate pressure to depress rotary dial 48 into opening 56.

Rotary dial 48 is configured to be rotated in a clockwise direction 94 or in a counter-clockwise direction 96. Rotation in clockwise direction 94 increments a numerical selection value (not shown) and scrolls non-numerical selections (shown in detail below) in ascending alphabetical order. Rotation in counter-clockwise direction 96 decrements the numerical selection value and scrolls non-numerical selections (shown in detail below) in reverse-alphabetical order. Rotary dial 48 is configured to provide tactile feedback to a user simultaneously as rotary dial 48 is rotated. The tactile feedback allows the user to determine an amount of rotation (not shown). In one embodiment, the tactile feedback has a resolution of approximately 15-25 counts per revolution. As such, when rotary dial 48 is rotated, the user will feel approximately 15-25 "stopping points" and thus, will sense an amount of rotation of rotary dial 48.

Control information 49 may be selected using touch control area 46, rotary dial 48, or a combination of rotary dial 48 and touch control area 46. In operation, plurality of keys 60-86 are configured to function in cooperation with rotary dial 48. Initially, a mode of cooking appliance 10 is selected to use for cooking. Depressing touch control pad 60 results in the processor causing control interface 44 to visually prompt the user with alphanumeric display 50 for selections for the lightwave mode of cooking appliance 10. Depressing microwave touch control pad 74 results in the processor causing control interface 44 to visually prompt

the user with alphanumeric display 50 for selections for the microwave mode of cooking appliance 10.

Depressing touch control pad 60 and rotating rotary dial 48 results in alphanumeric display 50 displaying pre-programmed control information 100. Pre-programmed control information 100 includes a listing of food types 112 commonly cooked with a lightwave mode of cooking appliance 10. In one embodiment, food type listing 112 includes appetizers and snacks, breads, breakfast, chicken, desserts, fish and seafood, meats, pizza, potatoes, and sandwiches.

Depressing microwave touch control pad 74 and rotating rotary dial 48 results in alphanumeric display 50 displaying pre-programmed control information 100 including a listing of various food types and features 114 commonly cooked using the microwave mode of cooking appliance 10. In one embodiment, listing 114 includes bacon, beverage, defrost (auto), defrost (timed), popcorn, recipe, reheat (one serving), soup, time cook, vegetables (canned), vegetables (frozen), and vegetables (fresh).

After scrolling through food type listing 112 or food type listing 114 to visually select the food (not shown) to be cooked, the user inputs the selection to the processor by depressing rotary dial 48 while the food type is displayed in alphanumeric display 50. Depressing rotary dial 48 produces a short beep to signal the user that rotary dial 48 was depressed.

An initial scrolled display will remain "active" on alphanumerical display 50 until 15 seconds has elapsed unless one of keys 60-86 is depressed or rotary dial 48 is depressed or rotated. If 15 seconds elapse without one of keys 60-86 being depressed or without rotary dial 48 being rotated or depressed, then alphanumeric display 50 switches from an "active" mode of the selection process and display a current time of day. Each additional incremental change in rotation in either direction with rotary dial 48 restarts the 15-second timeout. Any additional input of control information 49 triggers the processor and alphanumerical display 50 to wait indefinitely for the next user input.

After selecting a type of food to be cooked, rotating rotary dial 48 results in alphanumerical display 50 displaying a pre-programmed food weight listing 116 of suggested food weights and food sizes corresponding to the food type selected.

In one embodiment, food weight listing 116 includes small, medium, or large, and a number of servings between 1 and 9 depending on which food is being cooked.

Additional rotation of rotary dial 48 results in alphanumeric display 50 displaying a temperature listing 118 suggesting various temperature settings for the food type, food size, and food weight selected. In one embodiment, temperature listing 118 includes low, medium, and high power level settings. In a second embodiment, additional rotation of rotary dial 48 results in alphanumeric display 50 displaying a doneness listing 120 including various degrees of cooking doneness for the food being cooked. In one embodiment, doneness listing 120 includes medium or well-done.

Each time rotary dial 48 is depressed to input control information 49, a short beep is sounded and a new visual prompt is displayed on alphanumeric display 50 along with a first selection of a next set of feature options. In one embodiment, depending on the food to be cooked and the mode of cooking appliance 10 selected, two to five selections may be inputted before cooking appliance 10 begins cooking.

In one example, depressing cook touch control pad 60 results in alphanumeric display 50 displaying selections for the lightwave mode of cooking. Rotation of rotary dial 48 then enables the user to view food type listing 112 on alphanumeric display 50 (clockwise rotation 94 scrolls food type listing 112 in ascending alphabetical order and counter-clockwise rotation 96 scrolls food type listing 112 in ascending reverse-alphabetical order). When rotary dial 48 is depressed to select "MEATS", a short beep sounds and the processor causes "Select MEAT type" to be displayed in alphanumeric display 50. Rotation of rotary dial 48 then enables the user to view the pre-programmed meat types including: filet mignon, hamburger, lamb chops, pork chops, steaks-ribeye, steaks-sirloin, steaks-strip, and steaks-t-bone with alphanumeric display 50. When rotary dial 48 is depressed to select "Steaks-strip", a short beep sounds and the processor causes "Select Size" to be displayed on alphanumeric display 50. Rotation of rotary dial 48 then permits the user to view pre-programmed steak sizes including the number of steaks and their associated thicknesses. Selecting a number of steaks and a thickness causes the processor to display "Select Doneness" on alphanumeric display 50. Rotation of rotary dial 48 enables the user to view pre-programmed degrees of cooking doneness including medium, and well-done. Selecting a degree of cooking doneness causes the processor to prompt the user with alphanumeric display 50 to use a cooking tray (not

shown) when cooking. Additionally, the processor will cause alphanumeric display 50 to display pre-programmed cooking times for the strip steak selected to be cooked.

Cooking using pre-programmed control information 100 begins after start/pause touch control pad 62 is depressed. Depressing start/pause touch control pad 62 signals the processor that the input of control information 49 is complete for the current food to be cooked, and as a result, the processor energizes the microwave and/or the lightwave cooking elements. Depressing start/pause touch control pad 62 pauses the cooking. Pressing rotary dial 48 during cooking permits a review of control information 49 initially inputted as a cooking routine to cook the food.

During cooking operations, the cooking routine is executed with the control information 49 inputted. If rotary dial 48 is not moved, the cooking routine continues to be executed. Rotating rotary dial 48 at any time during the execution of the cooking routine permits a user to adjust the time of the cooking. Clockwise rotation 94 of rotary dial 48 increases the cooking time of the food cooking, while counter-clockwise rotation 96 of rotary dial 48 decreases the cooking time of the food cooking.

Depressing manual cook touch control pad 64 and rotating rotary dial 48 permits the user to manually input control information 49 before the cooking of the food is started, including the length of time for cooking and the power levels to be applied by cooking appliance 10. Additionally, depressing manual cook touch control pad 49 and then rotating rotary dial 48 permits the user to select any combination of non-preprogrammed cooking information 49.

Depressing clear/off touch control pad 66 immediately terminates the current cooking process and clears any control information 49 that had been inputted for cooking.

Depressing options touch control pad 82 enables a current time of day to be set. Additionally, depressing options touch control pad 82 and then rotating rotary dial 48 enables a user to set a scroll speed for the visual prompts displayed on alphanumeric display 50, an automatic nite light (not shown) time on and/or off, and a sound level for the beep signal.

Keys 60-86 also provide additional options and features to the user. Depressing power level touch control pad 68 enables the user to alter any pre-

programmed suggested power levels. Depressing delay start touch control pad 70 permits the user to select a time of day for cooking to begin. Depressing timer touch control pad 72 permits the user to program the processor to control a timer. After an amount of time programmed into the timer has elapsed, the audible alarm sounds to indicate that the amount of time has elapsed. Depressing micro express touch control pad 76 inputs pre-programmed control information 49 resulting in the processor energizing the microwave cooking elements to quickly heat a beverage for 30 seconds at a high power level.

Two keys 78 and 86 are available for use when cooking appliance 10 is mounted above a conventional range or stove (not shown). Depressing vent fan touch control pad 78 activates a vent fan (not shown) to remove steam or smoke created from cooking on the range or stove. Depressing surface light touch control pad 86 energizes a light (not shown) mounted below cooking appliance 10 which illuminates a range-top or stove-top.

Two additional keys 80 and 84 are configured to provide assistance to the user. Reminder touch control pad 80 functions similarly to an alarm clock (not shown) and permits a time of day to be entered for the audible alarm to emit a signal as a reminder to the user. Depressing help touch control pad 84 causes the processor to display in alphanumeric display 50 an explanation about the function or operation of any key 60-86.

The above-described rotary dial control system for inputting control information for a cooking appliance is cost-effective and highly accurate. The cooking appliance includes a control panel which includes a rotary dial used to select control information, and a control interface for providing a prompt to guide a user through a selection process of the control information. The cooking appliance is operatively responsive to the selection of the control information from the rotary dial. Furthermore, the cooking appliance uses a control system which is less complex and more flexible when compared to other cooking appliance control systems. As such, a cost effective and reliable control system for a cooking appliance is provided.

While the invention has been described in terms of various specific embodiments, those skilled in the art will recognize that the invention can be practiced with modification within the spirit and scope of the claims.

WHAT IS CLAIMED IS:

1. A method for controlling a cooking appliance, the cooking appliance including a control system including a control panel and a control interface, the control panel including at least one rotary dial input device for selecting control information for the cooking appliance, the cooking appliance operatively responsive to the input entry of control information from the rotary dial, the control information including at least one of a cooking mode, a food type, a food weight, a food size, and a degree of doneness, and a control interface for providing a prompt to guide a user through an input entry of control information, the control interface configured to interact with the various cooking modes of the cooking appliance, said method comprising the steps of:

selecting a cooking mode for the cooking appliance; and

inputting control information to the cooking device.

2. A method in accordance with Claim 1 wherein the rotary dial input device is configured to provide tactile feedback simultaneously as the rotary dial is rotated, the rotary dial mechanically coupled to a select switch which is engaged when the rotary dial applies pressure to the select switch which is configured to input the control information displayed on the control interface to the cooking device, said step of inputting control information to the cooking device further comprising the steps of:

rotating the rotary dial to view the control information on the control interface; and

pressing the rotary dial to select the control information to input to the cooking device.

3. A method in accordance with Claim 2 wherein the rotary dial input device is configured to provide tactile feedback simultaneously as the rotary dial is rotated, the tactile feedback permits a user to determine an amount of rotation, the rotary dial configured to be rotated in either a clockwise or a counterclockwise direction, said step of pressing the rotary dial to select the control information to input to the cooking device further comprising the step of selecting a cooking mode.

4. A method in accordance with Claim 3 wherein said step of pressing the rotary dial to select the control information to input to the cooking device further comprises the steps of:

selecting the food type for cooking; and

selecting the food weight used in the cooking.

5. A method in accordance with Claim 4 wherein said step of pressing the rotary dial to select the control information to input to the cooking device further comprises the steps of:

selecting the food size for use in cooking; and

selecting the degree of doneness for the food type used in the cooking.

6. A method in accordance with Claim 5 wherein the control system enables a user to review the selected cooking information for a current cooking during the cooking, said method further comprising the step of reviewing the cooking information for a current cooking during the cooking.

7. A method in accordance with Claim 5 wherein the control system enables a user to adjust the cooking time for a current cooking during the cooking, said method for controlling a cooking appliance further comprises the step of adjusting a cooking time while cooking.

8. A control system for a cooking appliance for use in cooking, said control system comprising:

a control panel comprising at least one rotary dial input device for selecting control information for said cooking appliance, said control information comprising at least one of a cooking mode, a food type, a food weight, a temperature, and a degree of doneness, said cooking appliance operatively responsive to said selection of said control information from said rotary dial; and

a control interface for providing a prompt to guide a user through selecting said control information, said control interface configured to interact with at least one cooking mode of cooking appliance.

9. A control system in accordance with Claim 8 wherein said rotary dial input device is configured to provide tactile feedback simultaneously as said rotary dial is rotated, said tactile feedback permits a user to determine an amount of rotation.

5 10. A control system in accordance with Claim 9 wherein said tactile feedback comprises a resolution of approximately 15-25 counts per complete revolution.

11. A control system in accordance with Claim 9 wherein said rotary dial input device is mechanically coupled to a select switch.

10 12. A control system in accordance with Claim 10 wherein said select switch is engaged when said rotary dial input device applies pressure to said select switch.

13. A control system in accordance with Claim 10 wherein said select switch is configured to input said control information displayed on said control interface to said cooking appliance after said rotary dial input device applies pressure to said select switch.

15 14. A control system in accordance with Claim 10 wherein said rotary dial input device is configured to actively input entry of control information for said cooking appliance before and during said cooking.

20 15. A control system in accordance with Claim 8 wherein said control information further comprises at least one of adjust or review.

16. A control system in accordance with Claim 15 wherein said active input entry of control information includes adjusting a cooking time of the cooking.

25 17. A control system in accordance with Claim 8 wherein said cooking appliance cooking mode comprises a microwave mode.

18. A control system in accordance with Claim 8 wherein said cooking appliance cooking mode comprises a lightwave mode.

19. A control system for a cooking appliance for use in cooking, said control system comprising:

a control panel comprising at least one rotary dial input device for selecting control information for said cooking appliance, said control information comprising at least one of a cooking mode, a food type, a food weight, a temperature, and a degree of doneness, said cooking appliance operatively responsive to said selection of said control information from said rotary dial; and

a select switch mechanically coupled to said rotary dial input device, said select switch configured to input said control information to said cooking appliance.

20. A control system in accordance with Claim 19 further comprising a control interface for providing a prompt to guide a user through selecting control information, said control interface display configured to interact with various cooking modes of said cooking appliance.

21. A control system in accordance with Claim 19 wherein said select switch is engaged when pressure is applied to said select switch by said rotary dial input device.

22. A control system in accordance with Claim 21 wherein said select switch is configured to input said control information to said cooking appliance after pressure is applied to said select switch.

23. A control system in accordance with Claim 20 wherein said rotary dial input device is configured to provide tactile feedback simultaneously as said rotary dial is rotated, said tactile feedback permitting a user to determine an amount of rotation.

24. A control system in accordance with Claim 23 wherein said tactile feedback comprises a resolution of approximately 15-25 counts per complete revolution.

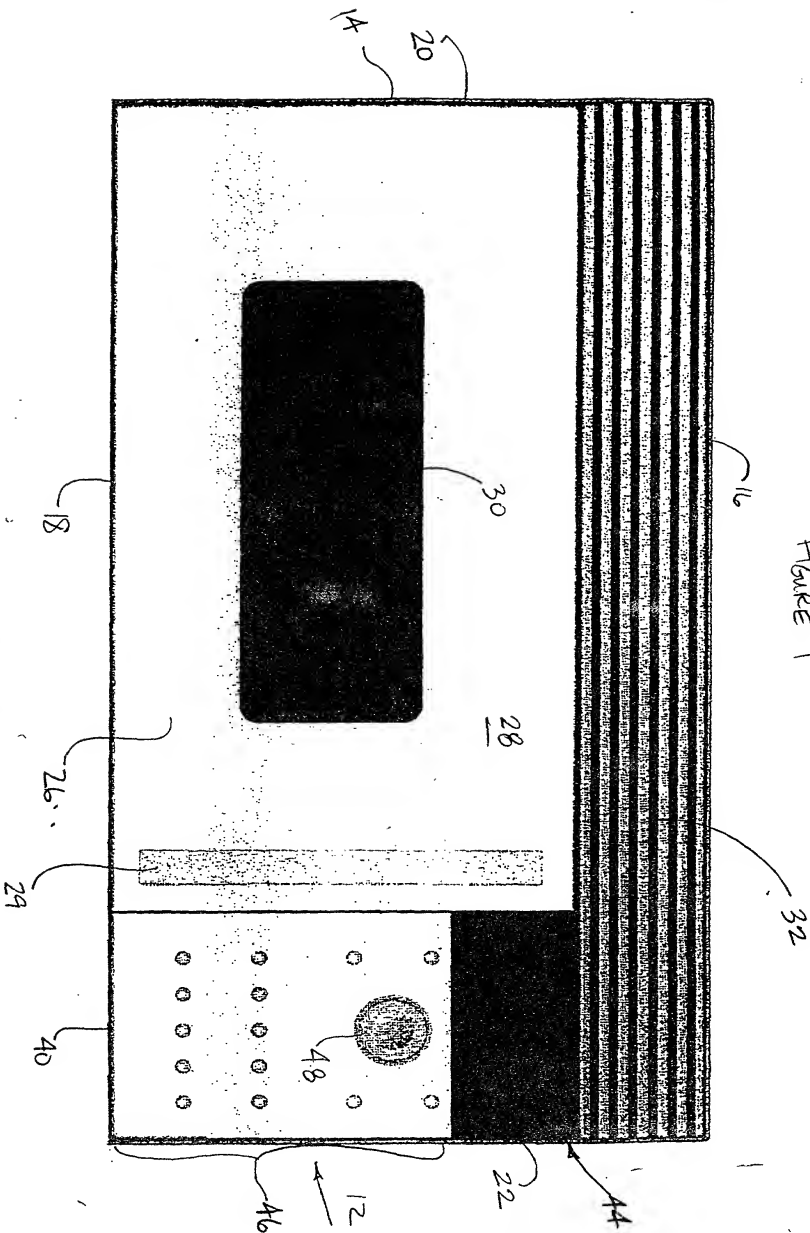
25. A control system in accordance with Claim 19 wherein said rotary dial input device is configured to actively input entry of control information for said cooking appliance before and during said cooking process.

METHODS AND APPARATUS FOR ROTARY DIAL
USER ENTRY IN AN APPLIANCE

ABSTRACT OF THE DISCLOSURE

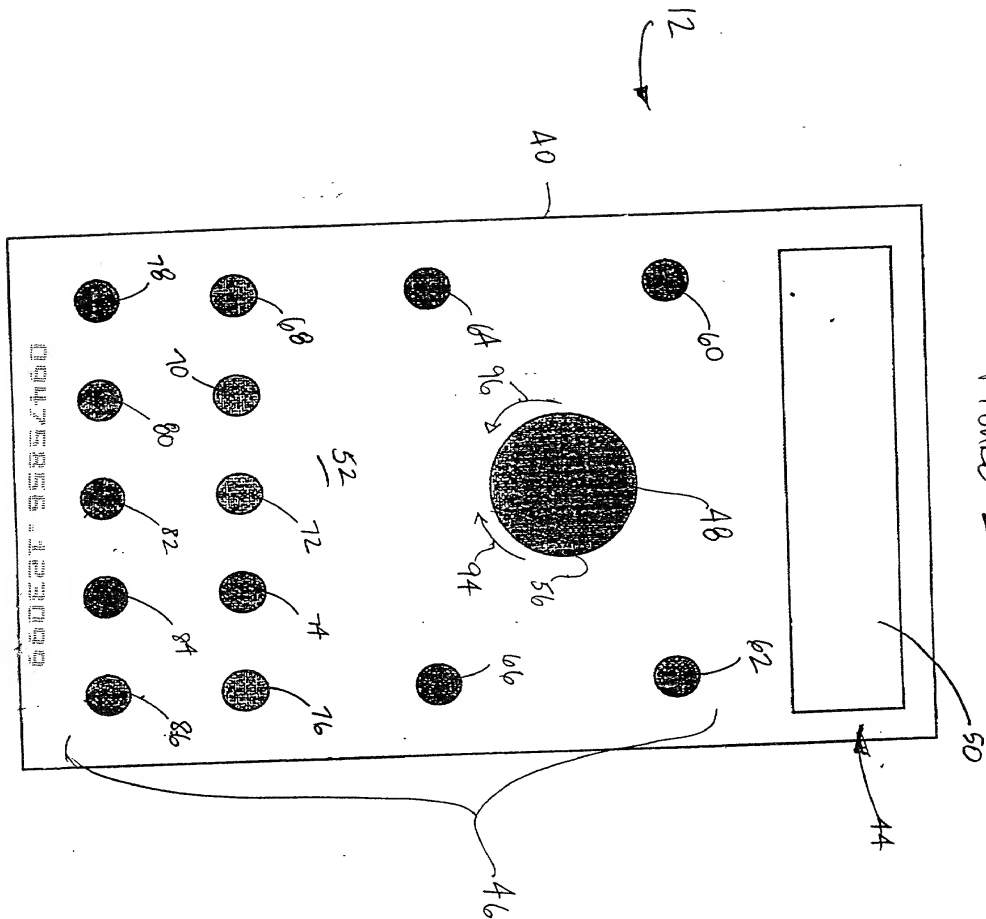
5 A cooking appliance includes a control panel which includes a rotary dial for selecting and entering control information to the cooking appliance, and a control interface for providing a prompt to guide a user through a selection process of the control information. The control information includes at least one of a cooking mode, a food type, a food weight or size, a cooking temperature, and a degree of doneness. The cooking appliance is operatively responsive to the selection of the control information from the rotary dial before and during cooking.

Figure 1



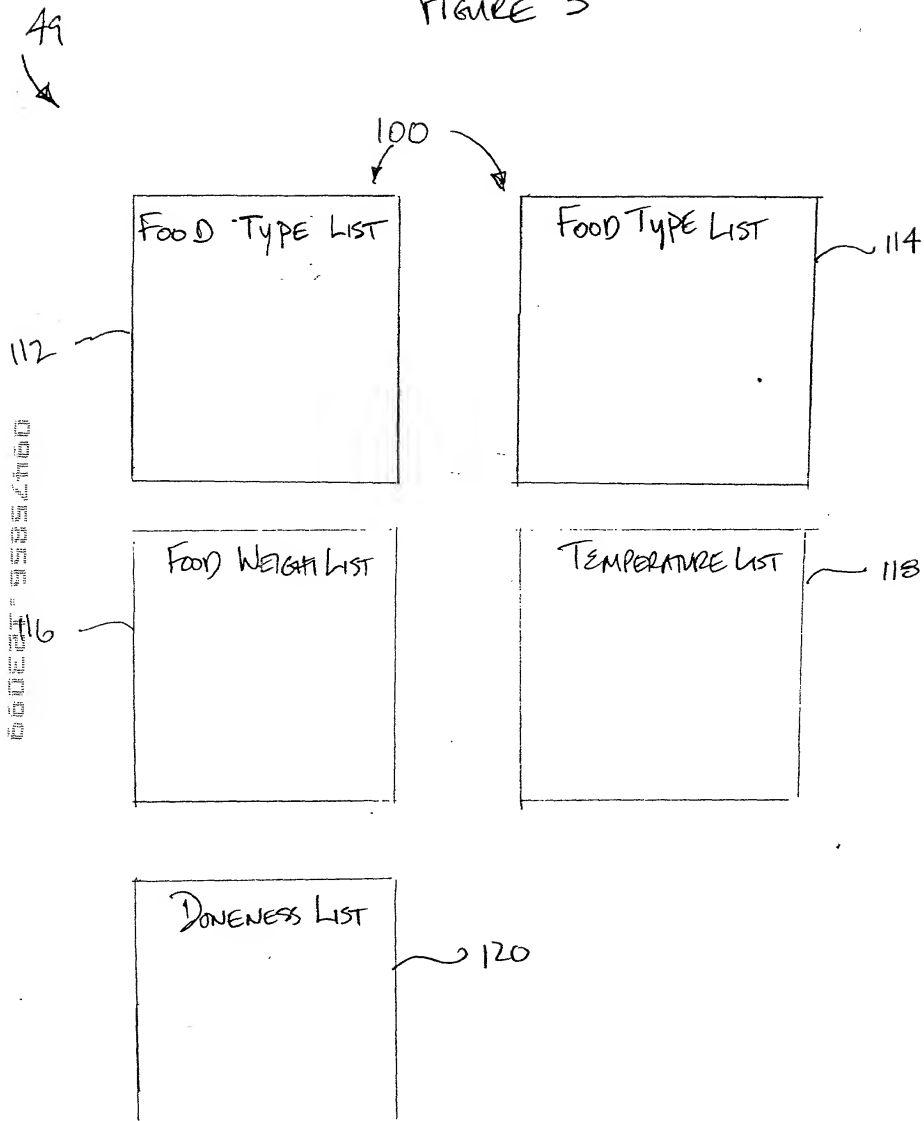
09475856.123009

FIGURE 2



09475856-123099

FIGURE 3



DECLARATION AND POWER OF ATTORNEY

Attorney's Docket No.

9D-RG-19294

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **METHODS AND APPARATUS FOR ROTARY DIAL USER ENTRY IN AN APPLIANCE**, the specification of which:

(check one) ☒ is attached hereto

☐ was filed on _____ as Application Serial No. _____,
and was amended on _____.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

I hereby claim priority benefits under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112. I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u>Application Serial No.</u>	<u>Filing Date</u>	<u>Status(patented, pending, abandoned)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (*list name and registration number*)

H. Neil Houser, Reg. No. 28,859, General Electric Company, Appliance Park 2-225,
Louisville, KY 40225

Send Correspondence to:

H. Neil Houser
General Electric Company
Appliance Park 2-225
Louisville, KY 40225

Direct Telephone Calls To:

H. Neil Houser
502.452.4653

DECLARATION AND POWER OF ATTORNEY

Attorney's Docket No.

9D-RG-19294

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application and any patent issued thereon.

SOLE OR FIRST INVENTOR:

Full Name: Jesse S. Head

Signature: _____ Date: _____

Residence: Louisville, KentuckyCitizenship: United StatesPost Office Address: 505 Briscoe Lane, Louisville, Kentucky 40219

SECOND JOINT INVENTOR, IF ANY:

Full Name: _____

Signature: _____ Date: _____

Residence: _____

Citizenship: _____

Post Office Address: _____

THIRD JOINT INVENTOR, IF ANY:

Full Name: _____

Signature: _____ Date: _____

Residence: _____

Citizenship: _____

Post Office Address: _____

FOURTH JOINT INVENTOR, IF ANY:

Full Name: _____

Signature: _____ Date: _____

Residence: _____

Citizenship: _____

Post Office Address: _____